

5.0 PUBLIC PAGE

A Comprehensive Update in the Evaluation of Pipeline Weld Defects

Summary

Girth weld defect acceptance criteria are set and enforced in all pipeline constructions per federal regulations (CFR 49 Parts 192 and 195). With the increased use of mechanized welding and AUT (Automated Ultrasonic Testing) in new pipeline constructions, alternative defect acceptance criteria based on ECA (Engineering Critical Assessment) principles are frequently used in lieu of the traditional workmanship criteria. This proposed program represents a major update to the alternative girth weld defect acceptance criteria. There are two focus areas in this program. The first focus area is to update the alternative defect acceptance criteria to address the immediate need of pipeline constructions in the U.S., typically with pipeline longitudinal strains less than 0.5%. The second focus area is the development of alternative defect acceptance criteria for ultrahigh strength pipelines (e.g., X100) in geotechnically challenging environments, such as arctic area and deep water offshore. These service environments will entail pipeline longitudinal strains greater than 0.5% and even up to 2-4%. No codified defect acceptance criteria yet exist for those service conditions. It is expected that the outcome of this project will form the basis for the revision of girth weld alternative acceptance criteria in North America, such as API 1104 Appendix and CSA Z662 Appendix K.

Progress as of March 2004

In the first quarter of this project, a public meeting was held. The representatives from the oil and gas industry and members of the API 1104 committee was informed of the work scope and anticipated outcome of the work. A number of constructive suggestions were received from the industry and they are being implemented.

In the second quarter of this project, progress was made on several fronts. The format of the code revisions has been studied and further refined. Necessary preparations were made for the testing of a unique laboratory-size specimen capable of capturing materials' resistance to large strains. The preparations include data interpretation procedures, cooling chamber, and trial testing of prototype specimens.